

ABSTRACT

A communications system implementing high-speed, high-quality communication in an oblong communication range such as mobile communication, and a leaky optical fiber 5 preferably used in such communications system are provided. An optical fiber (2) is a GI-type optical fiber having a core structured such that the refractive index at the center is large, gradually decreasing as it approaches the periphery, and may have scatterers mixed therein. When modulated light enters the optical fiber (2) from a transmitter (1), the modulated light proceeds through the optical fiber (2) while a part 10 of the light leaks from the side thereof. A receiver (3) receives this leaked light, and demodulates it so as to obtain data. Since the optical fiber (2) is a GI type, high-speed, high-quality mobile communication is possible with little waveform deformation.